

**Abstract**

**Horizontal Rotary Compressor in a Bus Air Conditioner**

A bus air conditioning system with at least one air conditioning module installed on a bus roof. The air conditioning system having a pair of supply air openings for conducting the flow of conditioned air downwardly near the outer side of the roof and a return air opening whose position may vary substantially in the lateral direction from a longitudinal central axis of the bus for any given installation. The air conditioning system including a refrigeration circuit for circulating refrigerant serially through a compressor, a condenser coil, an expansion valve and an evaporator coil. The air conditioning system further including an evaporator section including an evaporator blower for causing return air to flow from said return air opening, into a return air compartment of the evaporator section, through the evaporator coil and then to the supply air opening. The air conditioning system further includes a condenser fan for causing outside air to flow over the condenser coil and then to be discharged outside. Where the compressor is a horizontal compressor with a longitudinal axis. The compressor is mounted proximate to the roof of the bus and external to the passenger compartment of the bus and the compressor oriented such that the longitudinal axis of the compressor is substantially perpendicular to the longitudinal axis of the bus.